

**FROM  
1985**



**PYROJIN ECO  
INDUSTRIAL**

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## **CONTINUOUS PYROLYSIS PLANT INTRODUCTION**

**连续热解设备简介**

**商丘金蓬实业股份有限公司**

Pyrojin ECO Industrial Co.,Ltd.

# Catalogue

环保无界 / 行动有边

Boundless Environmentalism  
Purposeful Actions



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# Company Profile

企业简介

## 金蓬实业

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商丘金蓬实业股份有限公司是一家省级高新技术企业，公司成立于2008年，于2016年12月12日在新三板市场挂牌上市，股票代码：金蓬股份（870188），是一家集科研、生产、销售于一体的专门从事废旧资源综合利用设备制造的专业机构。近年来，在政府及有关职能部门的大力支持下，公司迅速发展壮大，目前公司年产销各种大型成套环保设备100余台(套)，年主营业务收入超过1亿元，年出口创汇额900多万美元，年实现税收达千万元，连续多年被评为出口创汇先进企业、纳税先进单位。

公司的主营业务为环保专用设备的研发、生产和销售。在处理废橡胶、塑料、废油泥、精馏残渣等废弃资源循环再生综合利用方面经验丰富、技术领先。我公司经多年技术攻关，研制出国内独创的热解焚烧新工艺，具有设备投资少、生产工艺简单等优势。公司推出的设备是目前国内技术领先的环保处理设备。公司研发生产的设备技术已经通过ISO 9001：2015国际质量管理体系、ISO 14001：2015国际环境体系认证、欧美标准质量体系CE认证。凭借着高质量的产品，良好的信誉，优质的服务，产品畅销全国近三十多个省、市、自治区，远销全球五大洲。

60+

### 企业专利 Company Patents



6项发明专利和50多项国家研发专利  
Invention Patents (6) & National R&D Patents (50+)

16+

### 技术&经验 Technology & Experience



长达16年的产品研发和服务经验  
More than 16 years experience on product R&D and service

## PYROJIN ECO INDUSTRIAL

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Pyrojin ECO Industrial Co.,Ltd. is a provincial-level high-tech enterprise founded in 2008. It was listed on the New Third Board market on December 12, 2016, with the stock code: Jinpeng Shares (870188). The company specializes in the research, production, and sales of plant for comprehensive utilization of waste resources. In recent years, with strong support from the government and relevant departments, the company has rapidly expanded. Currently, it annually produces and sells over 100 sets of various large-scale environmental protection plant, with annual main business revenue exceeding 100 million RMB, annual export earnings of over 9 million USD, and annual tax revenue reaching tens of millions of RMB. It has been rated as an advanced exporter and taxpayer for many consecutive years.

The company's main business is the research, production, and sales of environmental protection plant. We have rich experience and leading technology in the comprehensive utilization of waste resources such as waste rubber, plastic, waste oil sludge, and distillation residues. After years of technical breakthroughs, our company has developed a domestically innovative thermal decomposition and incineration process, which has the advantages of low investment and simple production process. The plant launched by the company is currently leading in environmental protection technology domestically. The technology developed and produced by the company has passed ISO 9001:2015 international quality management system certification, ISO 14001:2015 international environmental management system certification, and CE certification of European and American standard quality systems. With high-quality products, good reputation, and excellent service, the products are sold in nearly thirty provinces, municipalities, and autonomous regions nationwide, and are exported to five continents worldwide.

COMPANY  
Profile

# Development History

发展历史

## 1985

1985年开创了热解行业，有三十余年致力于固废危废综合处理项目的历史。

Pioneered the pyrolysis industry in 1985. Construction of integrated solid and hazardous waste treatment projects with over thirty years history.

## 2012

2012年公司建成一座省级研发中心。

Established a provincial-level research and development center in 2012.

## 2014

获得多项奖项。实现固废处理产业化、规模化、标准化。

Received several prizes. Achieving industrialization, scale, and standardization of solid waste treatment.

## 2016

公司新三板上市。于2016、2017年实现了年销售额达到1亿元以上的规模。

Went public on the New Third Board. In 2016 and 2017, the company achieved annual sales exceeding 100 million yuan.

## 2020

公司再次承担实施河南省重大科技专项。

Undertakes the implementation of major scientific and technological projects in Henan Province again.

## Now

仍致力于设备的研发及危废的处理。

Still committed to plant research and development and hazardous waste treatment.

# Company Culture



以质量赢得客户  
以服务成就品牌

Winning customers by quality  
Achieving brand by service

## Cultural Value

文化价值

### 企业使命

Company Mission

用技术和智慧构建美好生活  
Building a better life with  
technology and intelligence



### 企业愿景

Corporate Vision

科技减污，资源循环，共筑  
绿色地球。  
Innovate for pollution  
reduction, promote resource  
recycling, and contribute to  
building a green Earth.



### 核心价值观

Core values

客户第一、团队合作、持续  
创新  
Client First, Teamwork,  
Continuous Innovation



### 金蓬精神

Pyrojin Spirit

专业、专注、创新、高效  
Professional, Focused,  
Innovative, Efficient



# Carbon Black Plant Working Principle

炭黑设备工艺流程描述



## 02 磨粉机 Grinding Machine

炭黑经分离后送入振动给料机，再进入主机磨室粉碎，切刀剪切使其细化，保持菱形状态以提高橡胶强度。细化后的粉子通过风机气流带走，经分析机分级后，符合细度的粉子进入大旋风收集器进行分离收集，再经出粉管排出成品粉。整个气流系统是密闭循环的，正负压状态下循环流动。分析机通过变频电机带动叶片旋转，调节转速实现粉子分级，粗粉子重磨，合格的粉子通过叶片吸入收集器，被分离后收集。大旋风收集器对性能至关重要，确保气流与粉子分离后粉子被成功收集。

After separation, carbon black enters the vibrating feeder, then the grinding chamber for fine grinding with cutter shear to maintain a diamond shape, enhancing rubber strength. The refined powder is carried away by airflow for classification, and suitable particles are collected after separation in the cyclone collector, ensuring clean airflow and proper particle collection.

## 01 钢丝分离机 Steel Wire Separation Machine

热解炉产物经螺旋输送到分离机内，分离机启动后形成旋风，炭黑粉在旋风中被抛向选粉仓，而钢丝和其他杂物下沉至物料仓，最终通过螺旋排出机体。这一过程实现了对钢丝、杂质和纯净炭黑的有效分离。

The pyrolysis furnace product is conveyed to the separator, where a cyclone is formed upon activation, separating carbon black powder into the powder bin while steel wires and other debris settle in the material bin, eventually discharged from the machine, effectively separating steel wires, impurities, and pure carbon black.

## 03 改性 Modification

为了满足高端橡胶的使用需求，有必要对炭黑进行改性处理。改性剂暂存于改性料仓中，在炭黑研磨过程中，通过选择不同的改性剂种类或控制不同的改性剂与炭黑配比(1~5wt%)，最终获得不同性能指标的高性能裂解炭黑，如高强度性能、高定伸性能、耐磨性能、低生热性能、高加工性能等，以达到成品炭黑各项指标；研磨/改性后的粉末炭黑进入缓存料仓。

To meet high-end rubber demands, carbon black requires modification. Different modifier types and ratios (1-5wt%) during grinding yield high-performance carbon black with varied properties like strength, elongation, wear resistance, low heat generation, and processability. Modified powder is stored in the silo after grinding.

## 04 造粒 Granulation

炭黑性能显著提升后，为了在下游使用过程中，大大降低粉尘造成的环境污染，需将炭黑进行造粒。粉末炭黑从缓存料仓中均匀卸料，通过螺旋进料均匀输送至造粒机中。通过控制造粒水与裂解炭黑的配比(一般控制在4:6~6:4之间)，能够实现将粉末炭黑造粒成0.5~2mm的颗粒炭黑。

Enhanced carbon black performance necessitates granulation for reduced environmental dust pollution downstream. Powder from the bin is uniformly fed into a granulator via a screw feeder. Adjusting the water-to-carbon black ratio (typically 4:6 to 6:4) yields granules sized 0.5-2mm.

## 05 烘干 Drying

造粒后的炭黑进入高温滚筒干燥装置，控制滚筒干燥装置的出口温度在140℃以上，能够保证将炭黑中多余的水分烘干至<2wt%，满足炭黑的使用标准，由此获得成品造粒炭黑。

Granulated carbon black enters a high-temperature rotary dryer, ensuring moisture content <2wt% at an exit temperature of  $\geq 140^{\circ}\text{C}$ , meeting usage standards and yielding finished granulated carbon black.

## 06 包装 Packaging

根据生产工艺要求实现全流程自动化输送仓储，结合终端应用定制化实施20-25kg小袋包装，750-1000kg吨袋包装，然后入库即可销售。

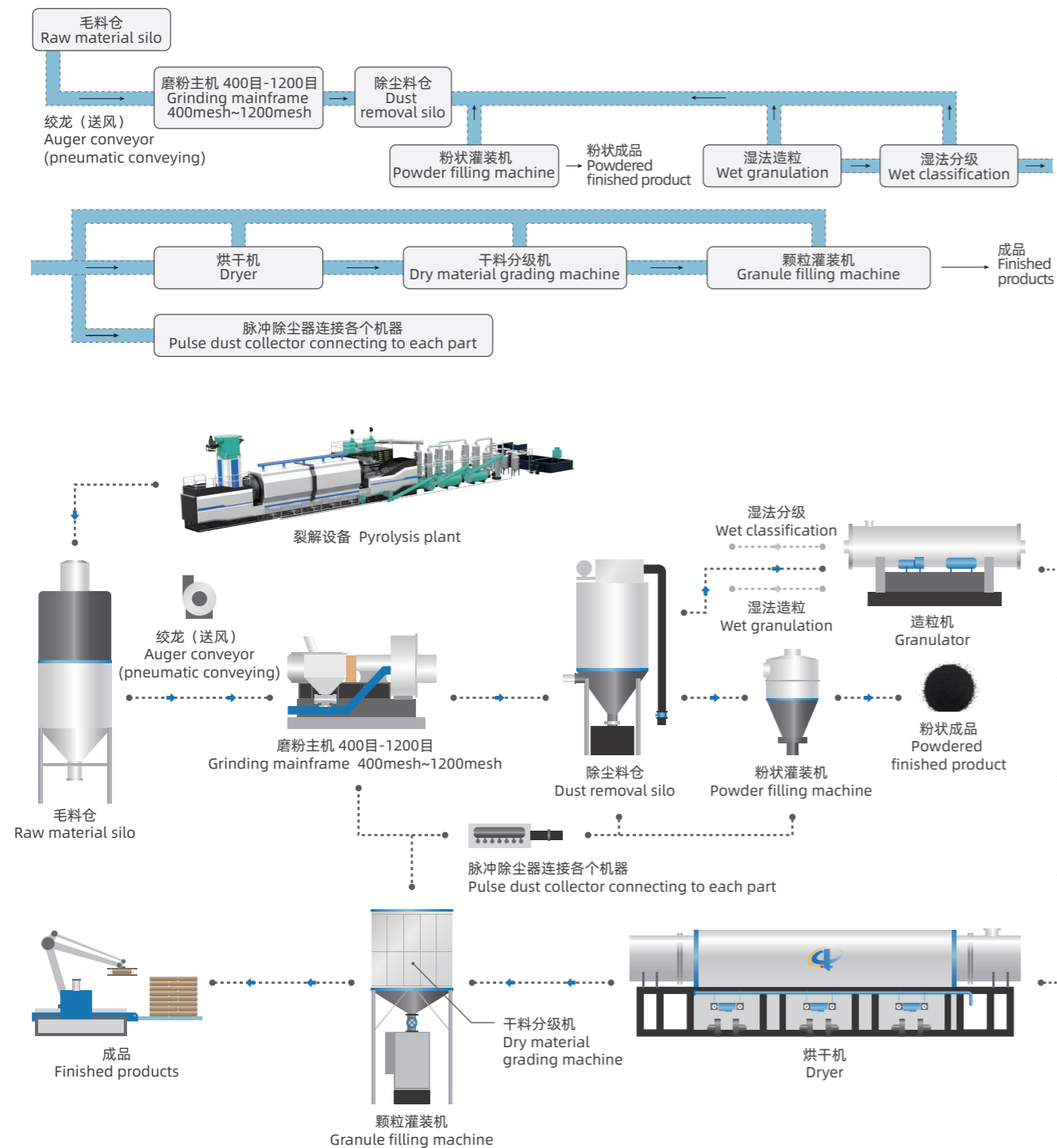
Automated conveyance and storage are implemented per production process requirements, customized for end applications with 20-25kg bags or 750-1000kg bulk bags for sale upon warehousing.



Carbon Black Plant

# Carbon Black Plant Processing Flow Chart

炭黑设备流程图



# Carbon Black Plant Diagram

炭黑设备图

**01** 炭黑造粒分级设备  
Carbon Black Granulation and Grading Plant



**02** 炭黑烘干设备  
Carbon Black Drying Plant



**03** 炭黑灌装设备  
Carbon Black Filling Plant



**04** 炭黑码垛设备  
Carbon Black Palletizing Plant



# Carbon Black Plant Characteristics

## 炭黑设备特点

01

整机低矮、易拆装，内部光滑无死角、易清洗，更换品种方便。

The whole machine is low-profile, easy to assemble and disassemble, with a smooth and seamless interior that is easy to clean, and convenient for switching between different varieties.

02

采用独特粉碎设计结构，不粘机，不堵料，出料流畅。

It employs a unique crushing design structure, preventing adhesion and material blockage, ensuring smooth discharge flow.

03

产品粒度可根据用户要求随时进行调节，范围宽（40---2000目）。

The product granularity can be adjusted at any time according to user requirements within a wide range (40 - 2000 mesh).

04

整个生产线可采用PLC控制，触摸屏显示，声光电显示报警系统电流、电压、温度压力等主要参数均有显示。实现整条生产线的自动控制。

The entire production line can be controlled by PLC, with touchscreen display, and a sound and light alarm system that displays major parameters such as current, voltage, temperature, and pressure. This enables the automatic control of the entire production line.

# Carbon Black Plant Technical Parameter

## 炭黑设备相关技术参数

项目 Item	技术参数 Content
原料 Raw Material	裂解炭黑，40目 Pyrolysis Carbon Black, 40 mesh
产品粒度 Product Granularity	D90=325目mesh
小时产量 Hourly Output	Hourly Output: 1000kg/h
操作电源 Operating Power Supply	380V 50Hz, 三相+P, 废气的粉尘排放量低于30mg/m <sup>3</sup> 380V, 50Hz, three phase+ground , Dust Emission of Exhaust Gas: less than 30mg/m <sup>3</sup>
占地面积 Floor Space:	1200 m <sup>2</sup>
注:	Note:
产品粒度和产量指标是与原料的性质，如密度，硬度，水份，可磨性，流动性等指标密切相关，建议通过实验来确定最终的产品粒度和产量。	Product granularity and output indicators are closely related to the properties of the raw materials, such as density, hardness, moisture content, grindability, flowability, etc. It is recommended to determine the final product granularity and output through experiments.

## 炭黑设备图

Carbon Black Plant Diagram

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# THE WORLD IS SPLENDID BY PERSISTENT INNOVATION

世界，因执着创新而精彩



24H连续化生产  
24H Continuous Production



自动化作业  
Automated Operations



节能又高效  
Energy Saving and High Efficiency

# Carbon Black Standards

炭黑指标

测试项目 Test Item	测量值 Measured Value	测量标准 Test Standards
吸碘值 g/kg Iodine absorption value g/kg	32	GB/T 3780.1-2015
吸油值 (DBP-A) 10 <sup>-5</sup> m <sup>3</sup> /kg Oil absorption value(DBP-A)10 <sup>-5</sup> m <sup>3</sup> /kg	82	GB/T 3780.2-2017
压缩试样吸油值 (DBP-A) 10 <sup>-5</sup> m <sup>3</sup> /kg Oil absorption value of compressed sample(DBP-A)10 <sup>-5</sup> m <sup>3</sup> /kg	66	GB/T 3780.4-2017
定伸应力 (与IRC4#差值) MPa Tension stress (Difference between IRC4#)MPa	-2.3	GB/T 3780.18-2017
CTAB比表面积10 <sup>3</sup> m <sup>2</sup> /kg CTAB Adsorption specific surface area10 <sup>3</sup> m <sup>2</sup> /kg	35	GB/T 3780.5-2017
总表面积10 <sup>3</sup> m <sup>2</sup> /kg Total surface area10 <sup>3</sup> m <sup>2</sup> /kg	32	GB/T 10722-2014
外表面积10 <sup>3</sup> m <sup>2</sup> /kg Outer surface area 10 <sup>3</sup> m <sup>2</sup> /kg	32	GB/T 10722-2014
加热减量 (125°C) % Heating loss(125°C)%	0.5	GB/T 3780.8-2008
倾注密度kg/m <sup>3</sup> Pour density kg/m <sup>3</sup>	459	GB/T 14853.1-2013
细分含量% Fine powder content %	4	GB/T 14853.1-2016
杂质 Impurity	无	GB/T 3780.12-2007
灰分 (825°C) % Ash(825°C) %	0.3	GB/T 3780.10-2007
45μm筛余物mg/kg 45μm Sieve residue mg/kg	820	GB/T 3780.21-2016
500μm筛余物mg/kg 500μm Sieve residue mg/kg	0	GB/T 3780.21-2016

# Company Qualification & Honor

企业资质与荣誉



## 企业资质 Company Qualifications

我公司经多年技术攻关，研制出国内独创的热催化热解新工艺。公司研发生产的设备技术已通过：ISO9001;2015国际质量管理体系；ISO14001 ;2015国际环境体系认证；欧美标准质量体系CE认证。

2013至2019年累计获得河南省科学技术成果10项，其中多个发明专利分别获得“河南省科技进步二等奖”、“河南省科普成果奖”、“商丘市科技进步一等奖等”。

After extensive research, we've pioneered a unique domestic thermal catalytic pyrolysis process. The plant technology developed and produced by the company has passed; ISO9001;2015 international quality management system; ISO14001; 2015 international environmental system certification; European and American standard quality system CE certification.

From 2013 to 2019, a total of 10 scientific and technological achievements were obtained in Henan Province.

### 2012

建立了一所省级工程技术研究中心；河南省废旧橡塑综合利用设备工程技术研究中心。  
Established provincial engineering technology research center; Henan Province Waste Rubber and Plastic Comprehensive Utilization Equipment Engineering Technology Research Center.

### 2014

河南省重大专项； 固体高分子废物热解制取燃油成套装备关键技术研究。  
Major special projects in Henan Province; Research on key technologies of complete equipment for producing fuel by pyrolysis of solid polymer waste.

### 2018

研发废旧橡胶制品处理与资源化高值利用成套装备关键技术研究的项目，承担了2018年市级重大科技专项及2019年省级重大科技专项。  
The project of research and development of key technologies for the treatment and high-value utilization of waste rubber products, undertaking the major municipal science and technology projects in 2018 and the major provincial science and technology projects in 2019.



## 发明专利 Invention Patents

### 6

- 设有自动出料装置的旋转式固体废弃物热解设备
- 节能环保型炭黑深加工设备
- 工业连续化废机油处理蒸馏设备
- 工业连续化环保节能型废轮胎热解设备
- 一种锅炉压力容器端面板环向焊接装置
- 炭黑、钢丝分离装置

- Rotary solid waste pyrolysis plant with automatic discharging unit
- Energy saving carbon black deep processing plant
- Industrial continuous waste engine oil treatment and distillation plant
- Industrial continuous energy saving waste tires pyrolysis plant
- A device for circumferential welding of end panels of boiler pressure vessels
- Carbon black and steel wire separator

## 实用型及其他专利 Utility & Other Patents

### 56



- 外观设计专利 (4项) Appearance Patent (4)
- 实用型专利 (52项) Utility Patents (52)
- 软件著作权 (6项) Software copyrights (6)

# Global Customers Distribution

全球客户分布图

■ 公司产品销售过的地区  
 Regions where our company has conducted sales  
■ 公司尚未开拓的市场  
 Markets our company has not yet entered



# 1500 +

累计售出1500多套设备（间歇设备、连续设备）  
Cumulative sales of more than 1500 sets of plant (Intermittent and continuous plant)

# 40 +

远销40多个国家和30多个中国地区  
Export to over 40 countries all over the world and 30 region in China

# 16 +

长达16年的产品研发和服务经验  
More than 16 years experience on product R&D and service

## Out of China

国内主要客户分布地区

- 美国 United States
- 波兰 Poland
- 沙特 Saudi Arabia
- 巴西 Brazil
- 泰国 Thailand
- 土耳其 Turkey
- 奥地利 Austria
- 加纳 Ghana
- 罗马尼亚 Romania
- 葡萄牙 Portugal
- 苏丹 Sudan
- 韩国 Korea
- 印度等 India, etc.

## In China

国内主要客户分布地区

- |                       |                   |                       |
|-----------------------|-------------------|-----------------------|
| 宁夏 Ningxia            | 广州 Guangzhou      | 河南鹤壁 Hebi, Henan      |
| 山东济宁 Jining, Shandong | 内蒙 Inner Mongolia | 山东济宁 Jining, Shandong |
| 山西大同 Datong, Shanxi   | 江西 Jiangxi        | 新乡 Xinxiang           |
| 新疆 Xinjiang           | 贵州 Guizhou        | 贵港 Guigang            |
| 湖南 Hunan              | 青岛 Qingdao        | 聊城 Liaocheng          |
| 邯郸 Handan             | 陕西 Shaanxi        | 云南等 Yunnan, etc.      |

# Terms and Conditions

## 付款条件

### 价格条款:

2020国际贸易术语解释通则中的FOB价, 连云港港口。

### 付款条件:

第一: 合同签订后, 以电汇 (T/T) 方式预付合同金额的40%。

第二: 60% 合同金额将在装货提供提单后通过电汇 (T/T) 。

买方为卖方工程师提供安装调试期间的双程机票、食宿、买方所在国当地交通及意外保障。买方还应支付工程师每天100美元的工资。

### PRICE TERMS:

FOB LIAN YUNGANG price, as Incoterm 2020.

### PAYMENT TERMS:

First: +40% of contract value will be paid by T/T in advance after signing the contract.

Second: +60% of contract value will be paid by T/T .

The buyer should provide double tickets, food, accommodation, Local traffic in buyer's country and accident assurance for seller's engineer during installation and commissioning. The Buyer should also pay the engineer's salary of 100 USD per day.

# Delivery Terms

## 运输条款

### 交货:

- 装运港: 中国连云港。
- 转运或分批装运: 禁止。
- 发货日期: 收到电汇定金之日起 60 天内。

标记: 毛重/净重

价格有效期: 30天

保修期: 主反应器一年。

买方应根据卖方提供的操作手册来操作设备。

### Delivery:

- Port of shipment: Lianyungang, China.
- Transshipment or Partial shipment: Prohibited.
- Shipment date: within 60 days upon the date receiving the deposit by T/T.

Marking: Gross weight /Net weight

Price Valid: 30 Days

Warranty: ONE YEAR for the main reactor.

The buyer should operate the plants according to the operation manual the seller supplied.

# Shipping photos



# Service and Support

## 售后服务与支持

交货: 质量保修期: 主反应器保修一年。

安装: 根据买方要求, 我公司派工程师到买方现场进行安装、调试, 并对买方工人进行操作、维护等技能培训。

根据买方厂房及土地布置提供厂房布局设计图、土建资料、操作手册等。

对于用户造成的损坏, 我公司按成本价提供配件。

我厂以成本价向客户提供易损件。

Delivery: Quality warranty period: One year warranty for the main reactor.

Installation: According to the requirements of the buyer, our company sends engineer for installation and commissioning in buyer's site including the training of skills of buyer's workers on operation, maintenance, etc.

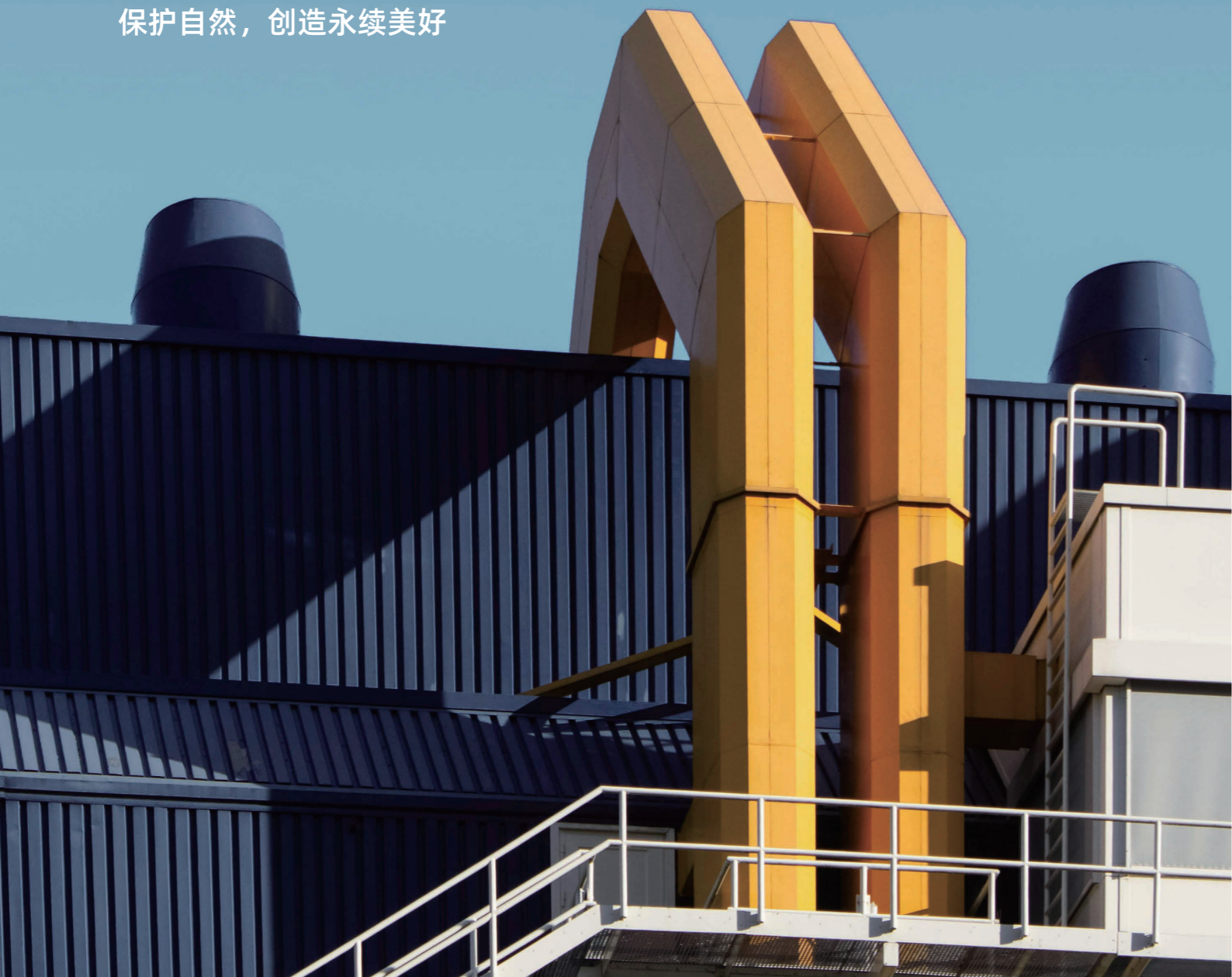
Supply layout according to buyer's workshop and land, civil works information, operation manuals, etc. to the buyer.

For the damage caused by the users, our company provides the parts and accessories with cost price.

Our factory supplies the wearing parts with the cost price to clients.

# PROTECTING NATURE FOR A SUSTAINABLE FUTURE

保护自然，创造永续美好



技术研发  
Principle Development



多项专利  
Several Patents



品质保证  
Quality Assurance



非标定制  
Customization



### 可靠的有保障的服务 Reliable Guaranteed Service



以客户为中心，以质量求生存，以创新谋发展。  
Customer centricity, survival through quality, and development through innovation.

### 4大优势 Four Major Advantages



完善的服务  
Perfect service

稳定的性能  
Stable performance



合理的价格  
Reasonable price

诚信的行为  
Honest behavior

### 质量管理体系 Quality Management System



质检小组把控质量  
The quality inspection team controls the quality



项目小组全程服务  
Full service provided by the project team



严控生产制作流程  
Strictly control the production process



售后维护保证服务  
After sales maintenance guarantee service

# Service Guarantee

服务保障

## Production Service

生产服务



对整个运输过程进行监控，确保安全性和及时性；  
Monitor the entire transportation process to ensure safety and timeliness



根据需求，邀请客户到厂验证后发货；  
According to demand, customers are invited to the factory for verification before shipment;



提前与客户联系，准备现场所需的辅助物品，确保在更短的时间内生产；  
Contact customers in advance to prepare auxiliary items needed on site to ensure production in a shorter time;



提前向客户提供所需图纸，指导客户提前做好土建工作，确保在较短的时间内投产。  
Provide customers with required drawings in advance, and guide customers to complete civil construction work to ensure that they can be put into production in a short period of time.



售前指导 Pre-sales Guidance

详细了解客户需求，分析规划并提供产品配置方案供客户选择。

Understand customer needs in detail, analyze planning and provide product configuration solutions for customers to choose.



售中咨询 Sales Consultation

邀请客户参观生产现场或厂区，介绍整个生产过程；为客户提供综合咨询、规划、实施等系列服务。

Invite customers to visit the production site or factory area and introduce the entire production process; provide customers with comprehensive consulting, planning, implementation and other series of services.



售后服务 After-sales service

- 01 独家交付经理和售后工程师双重服务；  
Dual services of exclusive delivery manager and after-sales engineer;
- 02 现场安装、调试、生产，工程师全程保驾护航。  
On-site installation, commissioning and production, engineers will escort you throughout the process.
- 03 提供专业的培训与相关技术咨询；  
Provide professional training and related technical consultation;
- 04 售后部门设有24小时的紧急叫应服务系统；  
The after-sales department has a 24-hour emergency response service system;
- 05 定期维护客户，保持高效沟通，并及时为客户解决问题；  
Maintain customers regularly, maintain efficient communication, and solve problems for customers in a timely manner;
- 06 为客户终身提供成本价的易损件。  
Provide customers with consumable parts at cost prices for life.